Tiffany Turner   Date: May 2£, 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

HP Docket No.: 10960787-10

Inventor(s): C. Venkatraman, et. al.   **Group Art Unit:**

Serial No.:   **Examiner:**

Filed: Herewith

Title: EMBEDDING WEB ACCESS FUNCTIONALITY INTO A DEVICE FOR USER INTERFACE FUNCTIONS

Continuation Application of Application

Serial No.: 09/721,409

Filed: November 21, 2000

Continuation Application of Application

Serial No.: 09/387,278

Filed: August 31, 1999

Continuation Application of Application

Serial No.: 08/740,289

Filed: October 25, 1996

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
Washington, D.C. 20231

Sir:

Prior to the examination of the above-referenced application, please amend

the application as follows:

IN THE SPECIFICATION

On page 1, line 1, insert:

This application is a continuation of Application No. 09/721,409, filed on

November 21, 2000, which is a continuation of Application No. 09/387,278, filed

on August 31, 1999, now U.S. Patent No. 6,170,007, which is a continuation of

Application No. 08/740,289, filed on October 25, 1996, now U.S. Patent No.

5,956,487.

On page 5, please delete the first paragraph and insert therefor the following:

A solution for providing widely accessible, low cost and enhanced user

interface functions for a device is disclosed. The solution involves embedding web

access functionality into the device including a web server that provides a device

web page. The device includes an embedded network interface that enables access

to the device web page by a web browser. A user of the web browser accesses the

user interface functions for the device through the device web page. The web

server functionality may be implemented with existing circuitry in a device, such

as an existing processor, memory, and input/output circuitry that normally perform

device-specific functions, thereby avoiding the extra cost and space required for

dedicated web server hardware.

Page 11, please delete the second paragraph and insert therefor:

In one embodiment, the device 10 is a printer device wherein the processor 200 and the memory 210 perform image rendering functions and the device-specific hardware 300 includes printer hardware and associated circuitry and wherein the input/output circuitry 220 provides network access to the printer device 10. The web server functionality is embedded into the printer device 10 by providing software or firmware for the processor 200 and by utilizing space available in the memory 210 and by using the existing input/output circuitry 220 such as Ethernet circuitry to transfer HTML files.

Page 12, please delete the second paragraph and insert therefor:

In yet another embodiment, the device 10 is a washing machine wherein the processor 200 and the memory 210 perform functions for controlling wash cycles. The device-specific hardware 300 includes hardware such as motors, valves, sensors, and associated circuitry. The web server functionality is embedded into the washing machine 10 by providing software or firmware for the processor 200 and by utilizing space available in the memory 210 and by adding the input/output circuitry to the device 10.

Page 20, please delete the first paragraph and insert therefor:

The web page 18 for the printer may also include manuals, parts lists, and other associated publications. These publications may be stored within the device 10 in, for example, a nonvolatile memory, or may be referenced elsewhere via hyperlinks contained in the web page 18. These publications contain dynamic information such as updated manuals as well as new and updated software driver routines for the device 10.

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IN THE CLAIMS

Please cancel claims 1-32 without prejudice.

Please add the following claims:

33. (New) A mechanism for providing a web page for a copier, comprising:

a web server that generates a web page for the copier, wherein the web page has a URL corresponding with the copier, and wherein the web page enables control functions for the copier;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the copier.

34. (New) The mechanism of claim 33 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the copier.

35. (New) The mechanism of claim 33 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the copier.

36. (New) The mechanism of claim 33 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

37. (New) The mechanism of claim 33 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

38. (New) The mechanism of claim 33 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

39. (New) The mechanism of claim 33 wherein the web server is implemented as a state machine.

40. (New) The mechanism of claim 33 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

41. (New) The mechanism of claim 33 wherein the web server includes a memory, and wherein the web page for the copier is stored in the memory.

42. (New) The mechanism of claim 33 wherein the web page for the copier is generated on the fly.

43. (New) The mechanism of claim 33 wherein the web page for the copier is a home page for the copier.

44. (New) A mechanism for providing a web page for a printer, comprising:

a web server that generates a web page for the printer, wherein the web page has a URL corresponding with the printer, and wherein the web page enables control functions for the printer;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the printer.

45. (New) The mechanism of claim 44 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the printer.

46. (New) The mechanism of claim 44 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the printer.

47. (New) The mechanism of claim 44 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

48. (New) The mechanism of claim 44 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

49. (New) The mechanism of claim 44 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

50.   (New) The mechanism of claim 44 wherein the web server is implemented as a state machine.

51.   (New) The mechanism of claim 44 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

52.   (New) The mechanism of claim 44 wherein the web server includes a memory, and wherein the web page for the printer is stored in the memory.

53.   (New) The mechanism of claim 44 wherein the web page for the printer is generated on the fly.

54.   (New) The mechanism of claim 44 wherein the web page for the printer is a home page for the printer.

55.   (New) A mechanism for providing a web page for a fax machine, comprising:

a web server that generates a web page for the fax machine, wherein the web page has a URL corresponding with the fax machine, and wherein the web page enables control functions for the fax machine;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the fax machine.

56. (New) The mechanism of claim 55 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the fax machine.

57. (New) The mechanism of claim 55 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the fax machine.

58. (New) The mechanism of claim 55 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

59. (New) The mechanism of claim 55 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

60. (New) The mechanism of claim 55 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

61. (New) The mechanism of claim 55 wherein the web server is implemented as a state machine.

62. (New) The mechanism of claim 55 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

63.   (New) The mechanism of claim 55 wherein the web server includes a memory, and wherein the web page for the fax machine is stored in the memory.

64.   (New) The mechanism of claim 55 wherein the web page for the fax machine is generated on the fly.

65.   (New) The mechanism of claim 55 wherein the web page for the fax machine is a home page for the fax machine.

66.   (New) A mechanism for providing a web page for a video player that reads video and audio information from a storage medium, comprising:

a web server that generates a web page for the video player, wherein the web page has a URL corresponding with the video player, and wherein the web page enables control functions for the video player;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the video player.

67.   (New) The mechanism of claim 66 wherein the storage medium is an optical storage medium.

68.   (New) The mechanism of claim 66 wherein the storage medium is magnetic tape.

69.   (New) The mechanism of claim 66 wherein the video player is a video player/recorder that reads and writes video and audio information to an optical storage medium.

70.   (New) The mechanism of claim 66 wherein the video player is a video player/recorder that reads and writes video and audio information to a magnetic tape storage medium.

71.   (New) The mechanism of claim 66 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the video player.

72.   (New) The mechanism of claim 66 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the video player.

73.   (New) The mechanism of claim 66 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

74.   (New) The mechanism of claim 66 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

75.   (New) The mechanism of claim 66 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

76.   (New) The mechanism of claim 66 wherein the web server is implemented as a state machine.

77.   (New) The mechanism of claim 66 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

78.   (New) The mechanism of claim 66 wherein the web server includes a memory, and wherein the web page for the video player is stored in the memory.

79.   (New) The mechanism of claim 66 wherein the web page for the video player is generated on the fly.

80.   (New) The mechanism of claim 66 wherein the web page for the video player is a home page for the video player.

81.   (New) A mechanism for providing a web page for a television, comprising:
    a web server that generates a web page for the television, wherein the web page has a URL corresponding with the television, and wherein the web page enables control functions for the television;
    a network interface coupled to the web server, the network interface being configured to couple to a communication path; and
    wherein the web server and network interface are embedded in the television.

82. (New) The mechanism of claim 81 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the television.

83. (New) The mechanism of claim 81 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the television.

84. (New) The mechanism of claim 81 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

85. (New) The mechanism of claim 81 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

86. (New) The mechanism of claim 81 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

87. (New) The mechanism of claim 81 wherein the web server is implemented as a state machine.

88. (New) The mechanism of claim 81 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

89. (New) The mechanism of claim 81 wherein the web server includes a memory, and wherein the web page for the television is stored in the memory.

90. (New) The mechanism of claim 81 wherein the web page for the television is generated on the fly.

91. (New) The mechanism of claim 81 wherein the web page for the television is a home page for the television.

92. (New) A mechanism for providing a web page for a thermostat, comprising:

a web server that generates a web page for the thermostat, wherein the web page has a URL corresponding with the thermostat, and wherein the web page enables control functions for the thermostat;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the thermostat.

93. (New) The mechanism of claim 92 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the thermostat.

94. (New) The mechanism of claim 92 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the thermostat.

95.   (New) The mechanism of claim 92 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

96.   (New) The mechanism of claim 92 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

97.   (New) The mechanism of claim 92 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

98.   (New) The mechanism of claim 92 wherein the web server is implemented as a state machine.

99.   (New) The mechanism of claim 92 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

100. (New) The mechanism of claim 92 wherein the web server includes a memory, and wherein the web page for the thermostat is stored in the memory.

101. (New) The mechanism of claim 92 wherein the web page for the thermostat is generated on the fly.

102. (New) The mechanism of claim 92 wherein the web page for the thermostat is a home page for the thermostat.

103.   (New) A mechanism for providing a web page for a refrigerator, comprising:

a web server that generates a web page for the refrigerator, wherein the web page has a URL corresponding with the refrigerator, and wherein the web page enables control functions for the refrigerator;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the refrigerator.

104.   (New) The mechanism of claim 103 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the refrigerator.

105.   (New) The mechanism of claim 103 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the refrigerator.

106.   (New) The mechanism of claim 103 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

107.   (New) The mechanism of claim 103 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

108. (New) The mechanism of claim 103 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

109. (New) The mechanism of claim 103 wherein the web server is implemented as a state machine.

110. (New) The mechanism of claim 103 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

111. (New) The mechanism of claim 103 wherein the web server includes a memory, and wherein the web page for the refrigerator is stored in the memory.

112. (New) The mechanism of claim 103 wherein the web page for the refrigerator is generated on the fly.

113. (New) The mechanism of claim 103 wherein the web page for the refrigerator is a home page for the refrigerator.

114. (New) A mechanism for providing a web page for a washing machine, comprising:

a web server that generates a web page for the washing machine, wherein the web page has a URL corresponding with the washing machine, and wherein the web page enables control functions for the washing machine;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the washing machine.

115. (New) The mechanism of claim 114 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the washing machine.

116. (New) The mechanism of claim 114 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the washing machine.

117. (New) The mechanism of claim 114 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

118. (New) The mechanism of claim 114 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

119. (New) The mechanism of claim 114 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

120. (New) The mechanism of claim 114 wherein the web server is implemented as a state machine.

121. (New) The mechanism of claim 114 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

122. (New) The mechanism of claim 114 wherein the web server includes a memory, and wherein the web page for the washing machine is stored in the memory.

123. (New) The mechanism of claim 114 wherein the web page for the washing machine is generated on the fly.

124. (New) The mechanism of claim 114 wherein the web page for the washing machine is a home page for the washing machine.

125. (New) A mechanism for providing a web page for a disk drive, comprising:

a web server that generates a web page for the disk drive, wherein the web page has a URL corresponding with the disk drive, and wherein the web page enables control functions for the disk drive;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the disk drive.

126. (New) The mechanism of claim 125 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the disk drive.

127. (New) The mechanism of claim 125 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the disk drive.

128. (New) The mechanism of claim 125 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

129. (New) The mechanism of claim 125 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

130. (New) The mechanism of claim 125 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

131. (New) The mechanism of claim 125 wherein the web server is implemented as a state machine.

132. (New) The mechanism of claim 125 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

133. (New) The mechanism of claim 125 wherein the web server includes a memory, and wherein the web page for the disk drive is stored in the memory.

134. (New) The mechanism of claim 125 wherein the web page for the disk drive is generated on the fly.

135. (New) The mechanism of claim 125 wherein the web page for the disk drive is a home page for the disk drive.

136. (New) A mechanism for providing a web page for an oscilloscope, comprising:

a web server that generates a web page for the oscilloscope, wherein the web page has a URL corresponding with the oscilloscope, and wherein the web page enables control functions for the oscilloscope;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the oscilloscope.

137. (New) The mechanism of claim 136 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the oscilloscope.

138. (New) The mechanism of claim 136 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the oscilloscope.

139. (New) The mechanism of claim 136 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

140. (New) The mechanism of claim 136 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

141. (New) The mechanism of claim 136 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

142. (New) The mechanism of claim 136 wherein the web server is implemented as a state machine.

143. (New) The mechanism of claim 136 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

144. (New) The mechanism of claim 136 wherein the web server includes a memory, and wherein the web page for the oscilloscope is stored in the memory.

145. (New) The mechanism of claim 136 wherein the web page for the oscilloscope is generated on the fly.

146. (New) The mechanism of claim 136 wherein the web page for the oscilloscope is a home page for the oscilloscope.

147. (New) A mechanism for providing a web page for a spectrum analyzer, comprising:

a web server that generates a web page for the spectrum analyzer, wherein the web page has a URL corresponding with the spectrum analyzer, and wherein the web page enables control functions for the spectrum analyzer;

a network interface coupled to the web server, the network interface being configured to couple to a communication path; and

wherein the web server and network interface are embedded in the spectrum analyzer.

148. (New) The mechanism of claim 147 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located in the spectrum analyzer.

149. (New) The mechanism of claim 147 wherein the web page includes at least one additional URL that specifies a corresponding additional web page that is located external to the spectrum analyzer.

150. (New) The mechanism of claim 147 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

151. (New) The mechanism of claim 147 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

152. (New) The mechanism of claim 147 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

153. (New) The mechanism of claim 147 wherein the web server is implemented as a state machine.

154. (New) The mechanism of claim 147 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

155. (New) The mechanism of claim 147 wherein the web server includes a memory, and wherein the web page for the spectrum analyzer is stored in the memory.

156. (New) The mechanism of claim 147 wherein the web page for the spectrum analyzer is generated on the fly.
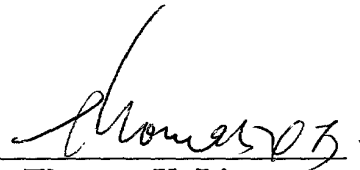
157. (New) The mechanism of claim 147 wherein the web page for the spectrum analyzer is a home page for the spectrum analyzer.

REMARKS

The specification has been amended to correct some typographical errors. New claims have been added to cover various embodiments of the invention. Applicants respectfully request allowance of this application.

Respectfully submitted,

Chandrasekar Venkatraman, et al.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Page 5, first paragraph

A solution for providing widely accessible, low cost and enhanced user interface functions for a device is disclosed. The solution involves embedding web access functionality into the device including a web server that provides a device web page. The device includes an embedded network interface that enables access to the device web page by a web browser. A user of the web browser accesses the user interface functions for the device through the device web page. The web server functionality may be implemented with existing circuitry in a device, such as an [exiting] existing processor, memory, and input/output circuitry that normally perform device-specific functions, thereby avoiding the extra cost and space required for dedicated web server hardware.

Page 11, second paragraph

In one embodiment, the device 10 is a printer device wherein the processor 200 and the memory 210 [preform] perform image rendering functions and the device-specific hardware 300 includes printer hardware and associated circuitry and wherein the input/output circuitry 220 provides network access to the printer device 10. The web server functionality is embedded into the printer device 10 by providing software or firmware for the processor 200 and by utilizing space available in the memory 210 and by using the existing input/output circuitry 220 such as Ethernet circuitry to transfer HTML files.

Page 12, second paragraph

In yet another embodiment, the device 10 is a washing machine wherein the processor 200 and the memory 210 [preform] <u>perform</u> functions for controlling wash cycles. The device-specific hardware 300 includes hardware such as motors, valves, sensors, and associated circuitry. The web server functionality is embedded into the washing machine 10 by providing software or firmware for the processor 200 and by utilizing space available in the memory 210 and by adding the input/output circuitry to the [video] device 10.

Page 20, first paragraph

The web page 18 for the printer may also include manuals, parts lists, and other associated publications. These publication<u>s</u> may be stored within the device 10 in, for example, a nonvolatile memory, or may be referenced elsewhere via hyperlinks contained in the web page 18. These publications contain dynamic information such as updated manuals as well as new and updated software driver routines for the video device 10.